Manned-Unmanned Operations (MUM-O)

What is it?

MUM-O is the use of both an Unmanned Aircraft Systems (UAS) and an armed (manned) helicopter in one engagement. The concept provides an unprecedented capability for increased standoff ranges for attack aircraft. AH-64D or OH-58D crews can now initiate target engagements at longer ranges while increasing their survivability from threat acquisition and weapons systems. MUM-O extends the shooter's eyes on targets and allows crews to develop courses of action well before reaching the target engagement area or before the enemy knows what is happening. This teaming maximizes coordination, integration and synchronization, and reduces the likelihood of exposure to the manned aircraft. MUM-O also provides early "eyes-on" awareness giving the Warfighter the ability to see, understand, decide and act first. Benefits from MUM-O include:

- Increased operational tempos
- Increased endurance
- Increased lethality
- Increased agility
- Increased survivability
- Persistent surveillance
- Reduced unknown and high risk factors
- Reliable combat information
- Puts decision makers forward

What has Army Aviation done?

The emergence of UAS in the mid-1990s brought new unmanned technologies to the Warfighter as the preferred means to accomplish the difficult, risky and critical missions of Intelligence, Surveillance and Reconnaissance (ISR). Since then, UAS employment has continued to expand at an unprecedented pace with thousands of hours logged in support of Operations Iraqi Freedom and Enduring Freedom. Embraced and valued by the Warfighters who employ them, these systems are in high demand and will continue to have an increasing role in Army operations. The advent of remotely operated unmanned systems is rapidly emerging as a preferred method for supporting dangerous missions in today's conflicts. UAS improve situational awareness, reduce Soldier risk and exposure to the enemy, and reduce the "sensor to shooter" timeline. Unmanned aircraft have longer on-station times with the capability to carry multiple payloads containing reconnaissance sensors and weapon systems. Today's technological advances permit the sharing and controlling of data between manned and unmanned aircraft.

What continued efforts does Army Aviation have Planned for the future?

Upgrades to Manned-Unmanned Teaming-2 (MUMT-2) will give the Apache aircrew the ability to control the UAS, enabling them to maneuver the unmanned aircraft to different positions on the battlefield to obtain a better view of hostile targets and friendly forces. In time, it may be possible for the Apache and other manned aircrews to have operational control of several UAS simultaneously. The exchanging of sensor data between the manned aircraft and the UAS, and vice versa, reduces the risk to both

platforms and increases mission effectiveness and survivability rates. MUM-O enhances the effectiveness of Army Aviation missions such as landing zone surveillance and clearing, air assaults, HVI-interdiction, persistent surveillance, and support to troops in contact. The levels of control that an operator can have with UAS are:

- Level 1 – Indirect receipt where information must be pulled.
- Level 2 – Receipt of UAS video and other sensor information.
- Level 3 – Control of the camera and sensors on the UAS.
- Level 4 – Control of the flight path and weapons systems.
- Level 5 – Full control of the UAS, including take off and landings.

Currently, AH-64D Apache crews have Level 2 access with the UAS. With the implementation of the Digital Data Link (DDL), the MUM concept will grow from "near real time" to instantaneous. The DDL will allow faster encrypted video with precision clarity to identify the enemy, and respond with rapid execution at greater distances across the battlefield. Level 4 MUM allows extension of UAS control beyond the line-of-site of the Universal Ground Control Station (UGCS). Where communication gaps with a UGCS may occur, with MUM-O, AH-64D Apache aircraft can take control of the unmanned aircraft and move it forward to an objective that may not otherwise be observed due to terrain obstructions or other limiting factors. Additionally, if there is a break in control communications between a UGCS and the UAS, MUM-O has the ability to retrieve the UAS and bring it back into mission parameters preventing the loss of a valuable asset.

Why is this important to the Army and Army Aviation?

The addition of MUM-O allows total joint forces integration by melding ISR data from all realms of the battle to include the land, sea and air. Through the layering of these capabilities Army UAS provide greater situational awareness and tactical flexibility for ground commanders, enhancing their ability to rapidly assess and respond to threats and changing situations in operations across the spectrum of conflict. This allows them to accomplish the assigned mission without exposing personnel to unnecessary hazards. The expansion of MUM-O transforms the single platform operator into a devastating fighting force providing maximum support to the ground Soldier and increases the scope and utility of future Army Aviation operations.

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